

# Work Order ID 67683



Page 1

Tuesday, March 29, 2011 11:23:30 AM

Item ID: D206-642-341

Accept



Setup Start



Revision ID:

Stop



Item Name: Replacement Skidtube

Start Date: 3/29/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 4/1/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: *[Signature]*

Date: 11-03-29

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D2650

F

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels per PPP D206-642-341 CHG003

*N/A [Signature]*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

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Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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110

0.00



Skidtubes

Skidtubes

Memo

0.00

1-Deburr Fwd edge of tube

2-Remove ridge on inside of Fwd edge of tubeas per Dwg D2650

3-Weld Fwd Cap as per Dwg D2650. Use aluminum rod. Grind D2647 to fit as required.

A/R ☐ Aluminum Rod ☐

4-Grind weld flush to cap on top surface only.

5-Cut aft end to lenght as per dwg D2650

6-Drill pilot holes using drill Jig DT8168A (A,& B ) and DT8025. Open to Ø0.312"

7-Drill holes for wearplates using DT 8028-5. Open to Ø 0.297".

8-Open Aft Cap Hole using #6 Drill Bit

9-Open holes for Tow Ring to Ø0.625" as per Dwg D2650, D2650-5 Drilling Detail

10-Remove inner indexing ridge on aft end of skidtubeas per Dwg D2650

11-Deburr and Blow out all chips form inside the tube

11-4-7

BE 11/04/12

BE 11/04/13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
115  QC Quality Control	QC5- Inspect part completeness to step on W/O  Memo	0.00  0.00				<u>11</u>	<u>11</u>	<u>04</u>	<u>14</u> (7)
120  HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1  Memo	0.00  0.00				<u>1</u>			BB 11/4/15
125  QC Quality Control	QC3- Inspect Part Finish  Memo	0.00  0.00							DP 11-4-14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Revision ID:					Stop	
Item Name:	Replacement Skidtube					
Start Date:	3/29/2011	Start Qty:	1.00		Cust Item ID:	
Required Date:	4/1/2011	Req'd Qty:	1.00		Customer:	
Reference:						

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	
	QC:	Date:	SPC (Y/N):	Date:		Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 	Skidtubes	0.00							
Skidtubes	<b>Memo</b>	0.00							
Skidtubes	1-Open holes to finished size as per Dwg D2650, D2650-5 Drilling Detail (without cutting fluid)								
	2-Countersink crossbolt spacer holes as per Dwg D2650(without cutting fluid)								
	3-Deburr. Blow out chips. Grind alodine off around crossbolt.spacer.								
	4-Bond D2654-5 web in place as per QSI 015Ensure holes line upAllow 12 Hrs. cure time before cutting								
	Start Date: 11-4-14 Time: 6 PM								
	Finish Date: Time:								
	A/R SikaFlex-291 M116948								
	SikaFlex expiry date: 12-1-15								
140 	QC5- Inspect part completeness to step on W/O	0.00							
QC	<b>Memo</b>	0.00							
Quality Control									

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Start Date: 3/29/2011 Start Qty: 1.00

Required Date: 4/1/2011 Req'd Qty: 1.00

Reference:

Cust Item ID:

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Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start  
Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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150

0.00



Skidtubes

Skidtubes

Memo

0.00

1-Prep per QSI 005 and Insert cross bolt spacers D2649. Weld as per QSI 004 and Dwg D2650. Remember to back drill each hole to 0.25" before welding the other side. Use aluminum rod.  
A/R ☐ Aluminum Rod ☒ M11385 BE 11/04/19

2-Grind welds flush as per Dwg D2650. Masking Tape access to inside of the Skidtube

3-Counterbore 5/16" x 0.750" deep as per Dwg D2650 Debur

4- Install nut plate as per dwg

170

QC10- Inspect visual per QSI004- ground welds

0.00



QC

Memo

0.00

Quality Control

8/10/04/20BE 11/04/20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**Stop**



**THE UNIVERSITY OF CHICAGO**

**Abstract**

**Customer:**

Run Start

...the ...

**Stop**

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_



## Set Up/ Run Hours

**Tool #**

**Plan  
Code**

Accept  
Otv

Reject  
QtyReject  
Number

Insp.  
Stamp

QC5- Inspect part completeness to step on W/O

0.00



OC

## Memo

0.00

## Quality Control

190

Pressure Wash per QSI005 4.3

0.00

[illegible]

HandFinish

## Memo

0.00

## Hand Finishing

Brush alodine tube on crossbolt spacer area, do not acid etch, do not dip tube in tank.

200

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0,00

**00000000000000000000**

**Powdercoat**

## Memo

0.00

## Powder Coating

START TIME: 10:40  
OVEN TEMPERATURE: 320°  
FINISH TIME: 11:10

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

210

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

Accept Qty: 11  
Reject Qty: 05  
Reject Number: 03  
Insp. Stamp: ①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Customer:

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Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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220

0.00



HandFinish

HandFinishing

Memo

0.00

Hand Finishing

1-Install inserts &amp; wearpads as per dwg D2922. Use a drop of Sikaflex inside insert holes before installing wearpad/wearplate.

A/R ☐ Sikaflex-291 ☐Sikaflex expiry date: ☐

2-Install O-Rings D2651-3 on plugs D2651-1 with Petroleum Jelly and install plugs as per Dwg D2650. Clean excess adhesive

3-Install MS27039-4-06 Screw as per DEO 9153

4-Inspect for foreign object per QSI 024

5-Install D2646 Aft Cap and seal with SikaflexClean excess adhesive

A/R ☐ Sikaflex-291 ☐Sikaflex expiry date: ☐

6-Wing Walk as per Dwg D2650-5 and QSI 005 4.4

Batch:

M117315

M116945

12/01

M116945

12/01

m-d  
11/05/03

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Customer:

Reference:

Run Start



Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230  QC Quality Control	QC3- Inspect Part Finish  Memo	0.00  0.00				<u>ml</u>	<u>11</u>	<u>05</u>	<u>04</u> (1)
240  QC Quality Control	QC5- Inspect part completeness to step on W/O  Memo	0.00  0.00				<u>ml</u>	<u>11</u>	<u>05</u>	<u>04</u> (1)
250  Packaging Packaging	Packaging  Memo Identify and pack for shipping as per PPP D206-642-341 Location: <u>PPR 07149</u> PPP Rev:	0.00  0.00							<u>PPR 07149</u>

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

260

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

11/6/8

CL11/06/07

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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# Picklist Print

Tuesday, March 29, 2011 11:23:37 AM

Page 1

Work Order ID: 67683

Parent Item: D206-642-341

Parent Item Name: Replacement Skidtube



Start Date: 3/29/2011

Required Date: 4/1/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev: H05.10.11 Added D3429-1 per CHG004 KJ/CP/JLM  
IPP Rev: I 08-09-29 revF as per dwg DD verified by: EC Est Rev: J 09-03-02 as per DSI9440 rev.a DD verified by: EC IPP rev K 10.08.03 chg ms27039-1-08 for "C" type EC verified by DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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AN960JD416	NAS1149D0463J	Purchased	No				Each	0.0000		1			
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Washer

CCR264SS3-3		Purchased	No				Each	197.0000		2			
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Cherry Rivet

M116805



1X m-11/05/03



BE11/04/20

Location	Loc Qty	Loc Code
FP-B	2	
113973	2	
ST311	195	
113973	2	
117086	193	

CR3212-4-03		Purchased	No				Each	1,280.000		2			
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Cherry Rivet



BE11/04/20

Location	Loc Qty	Loc Code
FP-B	16	
110139	16	
ST311	1264	
114859	1264	

2

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
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Parent Item: D206-642-341

Parent Item Name: Replacement Skidtube

Start Date: 3/29/2011

Required Date: 4/1/2011

Start Qty: 1.00

Required Qty: 1.00

D2620 Manufactured No

Each 11.0000

1



Skidtube, 206 Skidtube

Location

Loc Qty

Loc Code

LG

11

62684

7

64784

4



① DP 11-4-7

D2647 Manufactured No

Each 47.0000

1



Cap

Location

Loc Qty

Loc Code

LG002

47

55352

47

1

BE 11/04/12

D2649 Manufactured No

Each 99.0000

19



Cross Bolt Spacer

Location

Loc Qty

Loc Code

LG001

99

65317

99

1

BE 11/04/13  
68224 019

D2654-5 Manufactured No

Each 2.0000

1



Web

Location

Loc Qty

Loc Code

LG

2

64878

2

1

BC67675

① DP 11-4-14

D2680-041 Manufactured No

Each 32.0000

1



Nut Plate

Location

Loc Qty

Loc Code

ST020

32

55366

32

1

BE 11/04/20

Tuesday, March 29, 2011 11:23:38 AM

Shop Packet Print

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Work Order ID: 67683

Parent Item: D206-642-341

Parent Item Name: Replacement Skidtube

Start Date: 3/29/2011

Required Date: 4/1/2011

Start Qty: 1.00

Required Qty: 1.00

MS27039C1-08

Purchased

No

Each

780.0000

56



SCREW



*m-l 11/05/03*

Location

Loc Qty

Loc Code

FP-A

39

116022

39

ST293

741

115589

341

116373

400

ALS4-1032-130

Purchased

No

220

Each

0.0000

54

54



Insert

*M117 331*



*54x m-l 11/05/03*

AN960C10L

NAS1149C0332  
R

Purchased

No

220

Each

0.0000

54

54



washer

*M117 291*



*54x m-l 11/05/03*

AN960JD10L

NAS1149D0332J

Purchased

No

220

Each

0.0000

2

2



Washer

*M117 291*



*2x m-l 11/05/03*

D2646

Manufactured

No

220

Each

57.0000

1

1



Aft Cap



*m-l 11/05/03*

Location

Loc Qty

Loc Code

FP006

57

62678

57

*1x*

Tuesday, March 29, 2011 11:23:38 AM

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Page 3

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Tuesday, March 29, 2011 11:23:38 AM

Work Order ID: 67683

Parent Item: D206-642-341

Parent Item Name: Replacement Skidtube

Start Date: 3/29/2011

Required Date: 4/1/2011

Start Qty: 1.00

Required Qty: 1.00

D2651-1 Manufactured No

220 Each

129.0000 14 14



Plug

Location

Loc Qty

Loc Code

FP-A

129

57869 ✓

119

66445

10

*m-l 11/05/03*

*14X*

D2651-3 Manufactured No

220 Each

300.0000 14 14



O-Ring

Location

Loc Qty

Loc Code

FP-A

300

61962

*66956*

300

*m-l 11/05/03*

*14X*

D3535-11 Manufactured No

220 Each

8.0000 1 1



Wearshoe

Location

Loc Qty

Loc Code

FP019

8

46714

1

57261

2

63676 ✓

5

*m-l 11/05/03*

*1X*

D3535-23 Manufactured No

220 Each

3.0000 1 1



Wearshoe

Location

Loc Qty

Loc Code

FP021

3

61830

1

63571

1

66236 ✓

1

*m-l 11/05/03*

*1X*

*X*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Tuesday, March 29, 2011 11:23:38 AM

Page 5

Work Order ID: 67683

Parent Item: D206-642-341

Parent Item Name: Replacement Skidtube

Start Date: 3/29/2011

Required Date: 4/1/2011

Start Qty: 1.00

Required Qty: 1.00

D3535-35

Manufactured No

220 Each

13.0000

1

1



Wearshoe

Location

Loc Qty

Loc Code

FP018

13

62461

1

65926 ✓

12

D3536-11

Manufactured No

220 Each

22.0000

1

1



Gasket

Location

Loc Qty

Loc Code

FP011

22

46649

1

46715

5

57867 ✓

4

65574

12

D3536-23

Manufactured No

220 Each

35.0000

1

1



Gasket

Location

Loc Qty

Loc Code

FP011

35

43406

2

53468

1

63238

1

66240

6

66560 ✓

25

mk 11/05/03

IX  
mk 11/05/03

mk 11/05/03

IX

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

# Picklist Print

Page 6

Tuesday, March 29, 2011 11:23:39 AM

Work Order ID: 67683



Parent Item: D206-642-341



Parent Item Name: Replacement Skidtube

Start Date: 3/29/2011

Required Date: 4/1/2011

Start Qty: 1.00

Required Qty: 1.00

D3536-35  
Gasket  
Manufactured No

220 Each

14.0000

1

1



*m-k 11/05/03*

Location	Loc Qty	Loc Code
FP012	14	
62462	1	
65573	1	
66237	12	

D3537-1  
Wearpad  
Manufactured No

220 Each

36.0000

6

6



*m-k 11/05/03*

Location	Loc Qty	Loc Code
FP017	36	
63313	2	
65927	34	

D3537-3  
Wearpad  
Manufactured No

220 Each

18.0000

1

1



*m-k 11/05/03*

Location	Loc Qty	Loc Code
FP017	18	
35697	1	
61674	1	
65929	16	

MS27039-4-06  
Screw  
Purchased No

220 Each

83.0000

1

1



*m-k 11/05/03*

Location	Loc Qty	Loc Code
FP-A	34	
115460	34	
ST292	49	
115460	49	

Tuesday, March 29, 2011 11:23:39 AM

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Page 6

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries



QTY -1	QTY -3	QTY -5	QTY -7	PART NUMBER	DESCRIPTION
X				D2650-1	SKIDTUBE ASSEMBLY
	X			D2650-3	SKIDTUBE ASSEMBLY
		X		D2650-5	SKIDTUBE ASSEMBLY
			X	D2650-7	SKIDTUBE ASSEMBLY
1	1	1	1	D2600-1-160	EXTRUSION
1				D2654-1	WEB
	1			D2654-3	WEB
		1		D2654-5	WEB
			1	D2654-7	WEB
1	1	1	1	D2646	AFT CAP
1	1	1	1	D2647	CAP
17	18	19	23	D2649	CROSS BOLT SPACER
16	18	14	22	D2651-1	PLUG
16	18	14	22	D2651-3	O-RING
1	1	1	1	D2680-041	NUT PLATE
2	2			D3286-1	DOUBLER
2	2			D3286-3	STUD
42	44	54	60	ALS7-1032-130	INSERT (or AKS4-1032-130, ALS4-1032-130, ALS7-1032-130)
2	2	2	2	AN980JD10L	WASHER
2	2	2	2	CCR264SS3-3	RIVET
2	2	2	2	CR3212-4-03	RIVET
2	2	2	2	MS27039-1-08	SCREW
1	1	1	1	MS27039-4-06	SCREW
1	1	1	1	AN960JD416	WASHER
52	52			CR3212-4-04	RIVET

F

F

#### NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: -CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
-POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3  
-BLACK ANTI-SKID PAINT AS INDICATED TO 0.5 ABOVE LOCATION RIDGE PER DART QSI 005 4.4
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: N/A
- 8) WELD PER DART QSI 004
- 9) DAMAGE TOLERANCE ON FWD BEND:  
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 5 INCHES ABOVE THE GROUND. IT IS ACCEPTABLE TO POLISH OUT GOUGES UP TO 0.020 DEEP IN THE BENT PORTION OF THE TUBE. A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT PORTION OF THE TUBE.
- 10) BOND WEB INTO OUTER TUBE WITH SIKAFLEX-241/-291 ADHESIVE PER DART QSI 015
- 11) INSERT D2651-1 PLUG C/W D2651-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE)
- 12) DRILL Ø0.297 FOR ALS7-1032-130 INSERTS USING TEMPLATE DT8056-1 ON -1 TUBE, DT8056-3 ON -3 TUBE, DT8056-5 ON -5 TUBE, AND DT8056-7 ON -7 TUBE. INSTALL INSERTS AFTER FINISH.
- 13) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 6-7683  
011-03-29

RELEASED  
08-07-23

F	DRAWING UPDATED TO CURRENT STANDARDS. SHT 6 ADDED. ALL SECTION AND DETAIL VIEWS TRANSFERRED TO SHT 6. SHT 1 IN PL PART D2649 QTY UPDATED. SHT 6 SECT C-C GRIND INSTRUCTIONS DELETED FROM NOTE 7 (SEE NCR 239).	AJS	08.08.08
E	REMOVE CBORE, CHG DRILL, ADD CHAMFER	CP	06.03.30
D	REDRAW: INCCRP. DEC09136/9153/9163 MOD GROUND HANDLING ON D2650-1/-3	CP	04.05.17
C	CHANGE HOLE PATTERN AND FRONT END	DS	97.10.29
B	AS MANUFACTURED CHANGES	DS	97.06.26
A	NEW ISSUE	DS	97.03.25
REV.	DESCRIPTION	BY	DATE
DESIGN	DS	DART AEROSPACE USA, INC	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. F
MFG. APPR.		D2650	SHEET 1 OF 6
APPROVED		TITLE	SCALE
DE APPR.		206/407 SKIDTUBE ASSEMBLIES	NTS
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



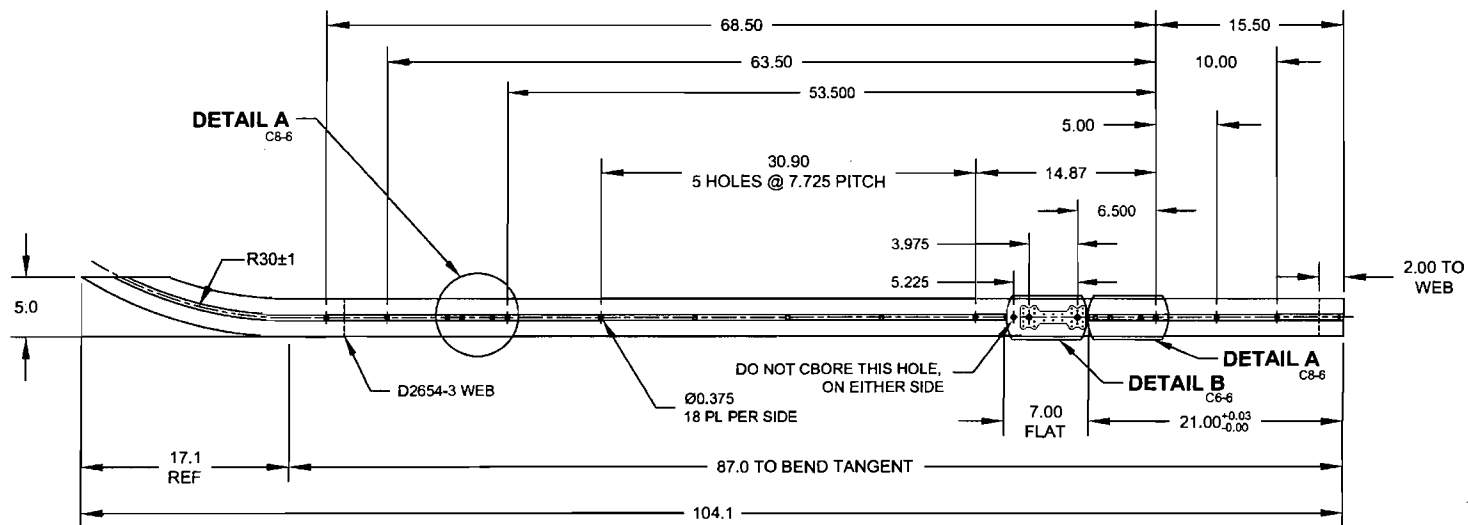
W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

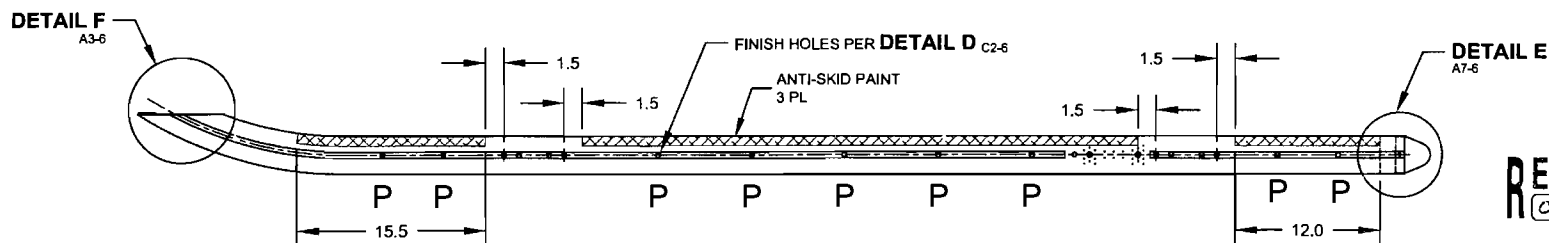
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



**D2650-3 BENDING/DRILLING DETAIL**

*u/647483*



**D2650-3 ASSEMBLY/FINISHING DETAIL**

**RELEASED**  
05-07-22-118

DESIGN	DS	<b>DART AEROSPACE USA, INC</b>	
DRAWN	AJS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. F
MFG. APPR.		D2650	SHEET 3 OF 6
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

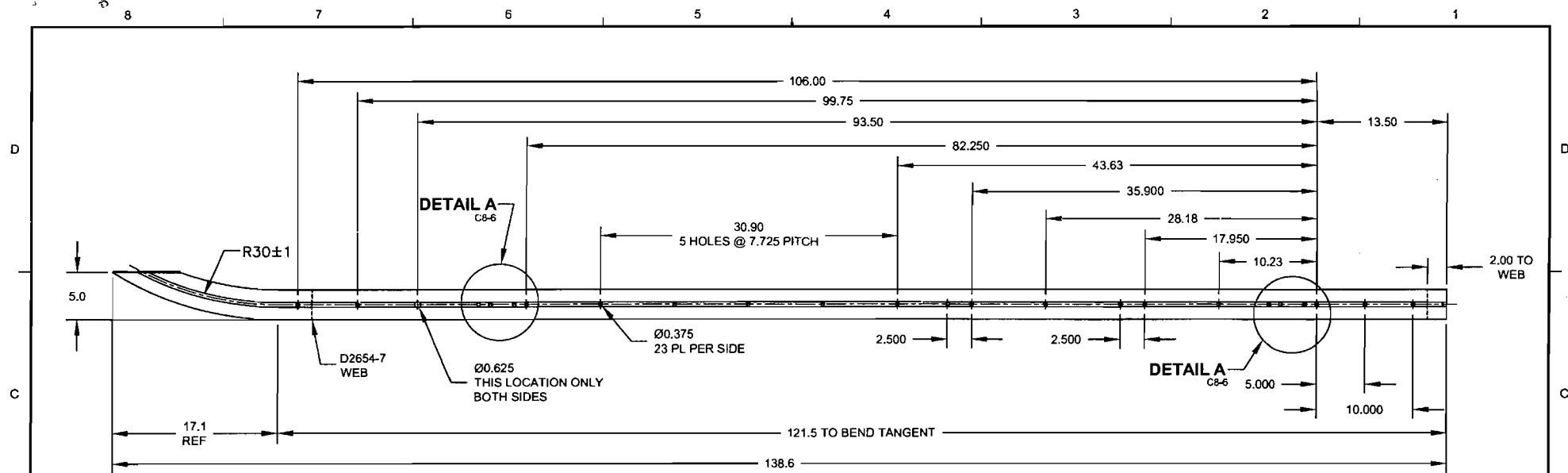
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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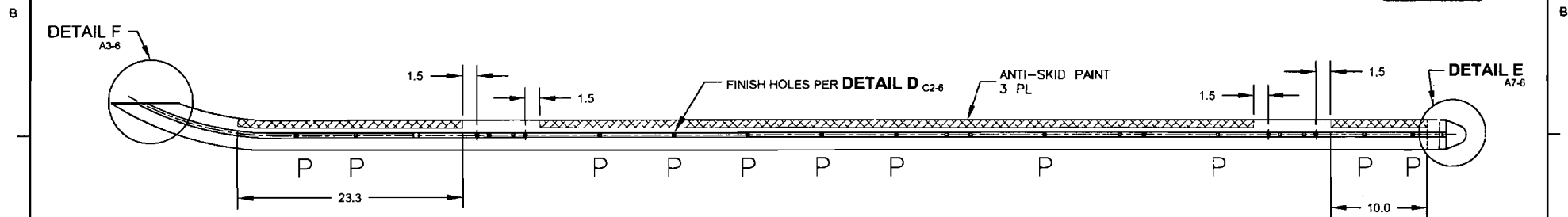




**D2650-7 BENDING/DRILL DETAIL**

u/o 47483

**RELEASED**  
08 07 22 2011



**D2650-7 ASSEMBLY/FINISHING DETAIL**

DESIGN	DS	<b>DART AEROSPACE USA, INC</b>	
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CHECKED	J	DRAWING NO.	REV. F
MFG. APPR.	J	D2650	SHEET 5 OF 6
APPROVED	J	TITLE	SCALE
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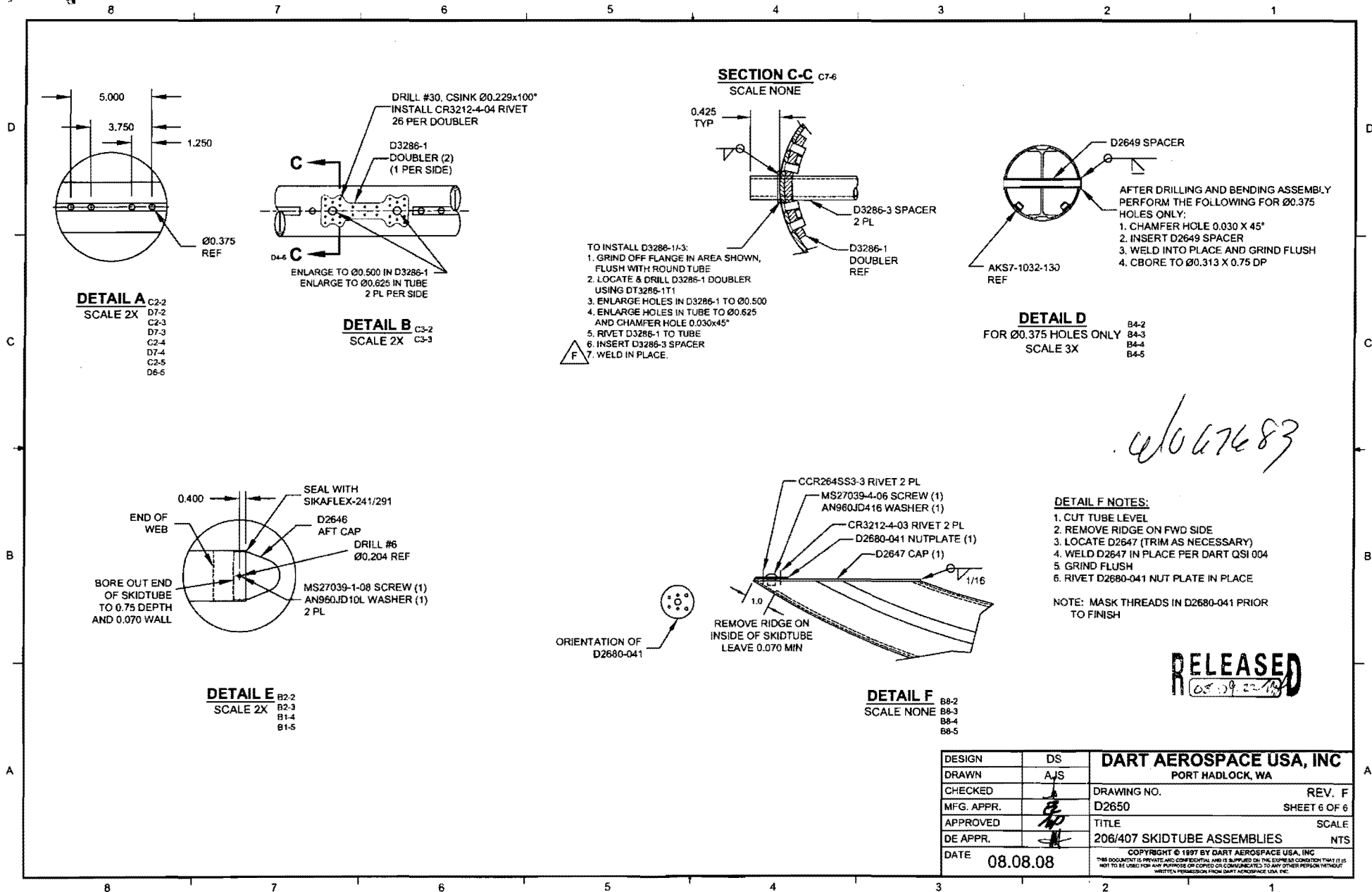
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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NO. 246

AWS D17.1.2001  
QUALIFICATION TEST RECORD

Name: Barclay Elliott  
Job number: 66462  
Part number: D206-642-441  
Description: 206 skirt tube  
Welding Process: Tig[☒] Mig[ ]  
Base material: aluminum  
Current: AC[ ] DC[☒]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[ ]  
Penetration: pass[☒] fail[ ]

UNACCEPTABLE

Cracks: pass[☒] fail[ ]  
Undercut: pass[☒] fail[ ]  
Pin holes: pass[☒] fail[ ]  
Overlap (cold lap): pass[☒] fail[ ]  
Porosity (surface): pass[☒] fail[ ]  
Coloration: pass[☒] fail[ ]

Qualifier Pat Lums Date of Test Coupon 11-03-09  
Welder Barclay Elliott Date of Test Coupon 11-03-09

The above named individual is qualified in accordance with AWS D17.1.2001 to weld

